

WHAT IS CLAIMED IS:

1. An apparatus for embedding a watermark into contents data, comprising:
 - 5 parameter converting means for converting a parameter of first contents data to generate second contents data; and
 - mixing means for embedding parameter information into the second contents data as watermark information, the parameter information representing a condition of the conversion of the
 - 10 parameter by the parameter converting means.
2. An apparatus as recited in claim 1, wherein the parameter converting means comprises means for converting a parameter of segments of the first contents data which correspond to pixels
- 15 forming a specified picture portion.
3. An apparatus as recited in claim 1, wherein the mixing means comprises means for embedding copyright information and the parameter information into the second contents data as watermark
- 20 information.
4. An apparatus as recited in claim 1, wherein the parameter converting means comprises means for converting a parameter of segments of the first contents data which correspond to pixels at
- 25 watermark-embedded positions, and the parameter information includes a parameter value indicative of a rate of the conversion of

the parameter, wherein the mixing means comprises a first mixer and a second mixer, wherein the first mixer comprises pattern generating means for generating bits representing a predetermined bit pattern, specified-bit detecting means for detecting bits in the
5 second contents data as specified bits which correspond to the pixels at the watermark-embedded positions, calculating means for calculating a desired bit pattern represented by the specified bits in response to the predetermined bit pattern and a specified bit pattern, and changing means for changing the specified bits to
10 represent the desired bit pattern to convert the second contents data into bit-pattern-added contents data, and wherein the second mixer comprises means for embedding copyright information and the parameter information into the bit-pattern-added contents data as watermark information.

15
5. An apparatus for reproducing a watermark from watermarked contents data generated by converting a parameter of original contents data to get conversion-resultant original data and embedding parameter information into the conversion-resultant
20 original data as watermark information, the parameter information representing a condition of the conversion of the parameter, the apparatus comprising:

parameter detecting means for detecting the parameter information from the watermarked contents data; and
25 parameter inversely converting means for inversely converting the watermarked contents data into the original contents data in

response to the parameter information detected by the parameter detecting means.

6. An apparatus as recited in claim 5, wherein the watermarked contents data include copyright information and the parameter information as the watermark information, and further comprising copyright information detecting means for detecting the copyright information from the watermarked contents data.

7. An apparatus as recited in claim 5, wherein the watermarked contents data have been generated by converting a parameter of segments of the original contents data which correspond to pixels at watermark-embedded positions, and the parameter information includes a parameter value indicative of a ratio of the conversion of the parameter, wherein the parameter detecting means comprises pattern generating means for generating bits representing a predetermined bit pattern, operation means for selecting specified bits among bits in the watermarked contents data, for repetitively changing the currently-selected specified bits from ones to others, and for executing given logical operation between the predetermined bit pattern and a bit pattern represented by the currently-selected specified bits, embedding-position detecting means for deciding whether or not a result of the given logical operation is equal to a specified bit pattern, and for, when the result of the given logical operation is equal to the specified bit pattern, deciding that the currently-selected specified bits correspond to a

watermark-embedded position, and parameter-value detecting means for detecting the parameter value in the detected parameter information, wherein the parameter inversely converting means comprises an inverse converter for, in response to the parameter value detected by the parameter-value detecting means, inversely converting the parameter of the segments of the watermarked contents data which correspond to the pixels at the watermark-embedded positions decided by the embedding-position detecting means.

10

8. An apparatus as recited in claim 7, wherein the predetermined bit pattern and the specified bit pattern remain unchanged when being rotated through one of 90, 180, and 270 degrees.

15

9. A recording medium for storing watermarked data including contents data and watermark information, the contents data having a parameter converted from an original value, the watermark information being embedded in the contents data, the watermark information including parameter information representing a condition of the conversion of the parameter from the original value.

20

10. A recording medium as recited in claim 9, wherein a parameter of segments of the contents data which correspond to pixels at watermark-embedded positions is converted from an original value, and the parameter information includes a parameter

25

value indicative of a rate of the conversion of the parameter,
wherein the watermarked data are produced by generating bits
representing a predetermined bit pattern, detecting bits in the
contents data as specified bits which correspond to the pixels at the
5 watermark-embedded positions, calculating a desired bit pattern
represented by the specified bits in response to the predetermined
bit pattern and a specified bit pattern, changing the specified bits to
represent the desired bit pattern to convert the contents data into
bit-pattern-added contents data, and embedding the parameter
10 information into the bit-pattern-added contents data as watermark
information.

11. A recording medium for storing watermarked data including
contents data and watermark information, the contents data having
15 a parameter converted from an original value, the watermark
information being embedded in the contents data, the watermark
information including copyright information and parameter
information representing a condition of the conversion of the
parameter from the original value.

20 12. An apparatus for embedding a watermark into contents data,
comprising:

address generating means for generating a jump-destination
address;

25 information generating means for generating copyright
information;

mixing means for embedding the jump-destination address generated by the address generating means and the copyright information generated by the information generating means into input contents data as watermark information to generate first

5 watermark-added contents data;

an encoder for compressively encoding the first watermark-added contents data generated by the mixing means into second watermark-added contents data; and

rearranging means for rearranging unit portions of the second
10 watermark-added contents data generated by the encoder in response to the jump-destination address generated by the address generating means, wherein the unit portions are defined by the encoding by the encoder.

15 13. An apparatus for embedding a watermark into contents data, comprising:

address generating means for generating a jump-destination address;

information generating means for generating copyright
20 information;

mixing means for embedding the jump-destination address generated by the address generating means and the copyright information generated by the information generating means into input contents data as watermark information to generate

25 watermark-added contents data; and

rearranging means for rearranging unit portions of the

10067920 02629001

watermark-added contents data generated by the mixing means in response to the jump-destination address generated by the address generating means, wherein the unit portions represent respective divided regions composing a still-picture frame.

5

14. An apparatus for reproducing a watermark from watermarked contents data, comprising:

rearranging means for rearranging unit portions of first watermark-added contents data in an original order to generate
10 second watermark-added contents data in response to a jump-destination address;

watermark information detecting means for detecting watermark information from the second watermark-added contents information;

15

address calculating means for calculating the jump-destination address from a related portion of the watermark information detected by the watermark information detecting means, and for notifying the calculated jump-destination address to the rearranging means;

20

a decoder for decoding the second watermark-added contents; and

copyright information detecting means for detecting copyright information from the watermark information detected by the watermark information detecting means.

25

15. An apparatus for reproducing a watermark from watermarked

contents data, comprising:

rearranging means for rearranging unit portions of first watermark-added contents data in an original order to generate second watermark-added contents data in response to a jump-
5 destination address, wherein the unit portions represent respective divided regions composing a still-picture frame;

watermark information detecting means for detecting watermark information from the second watermark-added contents information;

10 address calculating means for calculating the jump-destination address from a related portion of the watermark information detected by the watermark information detecting means, and for notifying the calculated jump-destination address to the rearranging means; and

15 copyright information detecting means for detecting copyright information from the watermark information detected by the watermark information detecting means.

16. A recording medium for storing watermarked data including
20 contents data and watermark information, the contents data resulting from a prescribed encoding procedure, the watermark information being embedded in the contents data, the watermark information including a jump-destination address and copyright information, the contents data having unit portions arranged in a
25 scrambled order different from an original order, the unit portions being defined by the prescribed encoding procedure, the jump-

destination address being for enabling the unit portions to be rearranged in the original order.

17. A recording medium for storing watermarked data including
5 contents data and watermark information, the contents data
representing a still picture, the watermark information being
embedded in the contents data, the watermark information
including a jump-destination address and copyright information, the
contents data having unit portions arranged in a scrambled order
10 different from an original order and representing respective divided
regions composing the still picture, the jump-destination address
being for enabling the unit portions to be rearranged in the original
order.